

Morning view of a Street in Kharkov
before the Nazi invasion of Russia.

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Architecture and City Planning
in Soviet Russia



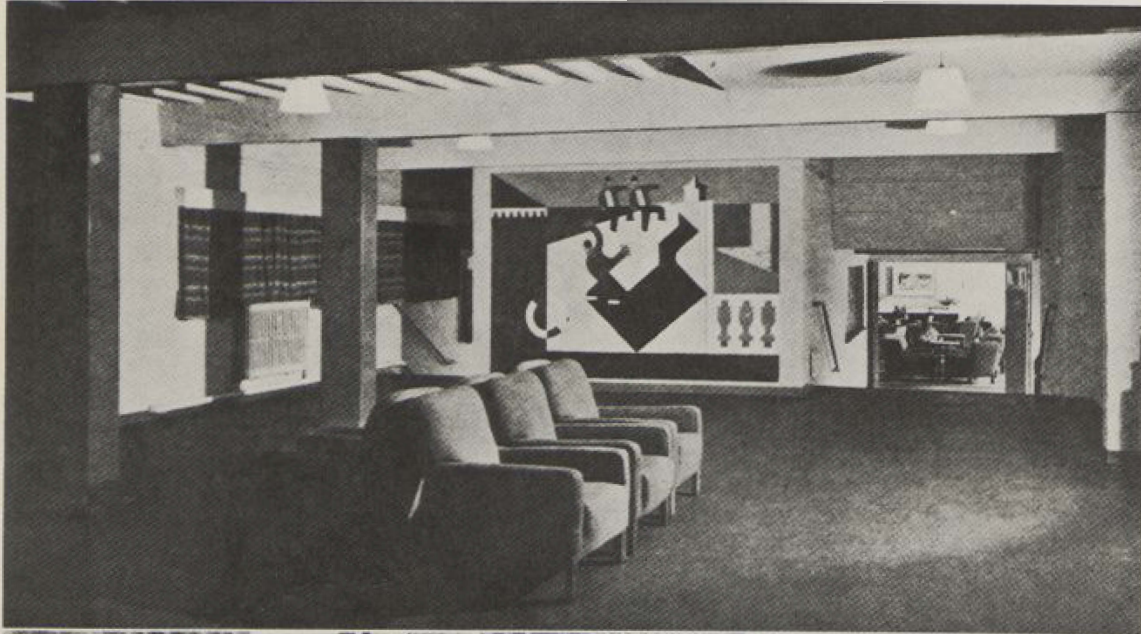
TASK

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The article on British planning (p. 2) advises technicians to base their hopes of a new Britain on achievements made during the war, rather than on the promises of the utopians and the bureaucrats, who have side-stepped the vital issues of the day. Their grand schemes for the rebuilding of London savour of megalomania, says a writer in the *English Architectural Review*, adding "One wonders why so few planners have plans for the present; why, if the war is a just one, architects feel they can make no special contribution to the winning of it."

Here are two examples of the work of architects who are making contributions in wartime. Prof. William Holford, in collaboration with the engineering firm of Sir Alexander Gibb and Partners, has designed large scale munitions hostels, maintaining site offices and exercising close control of the work which formerly would have been left to the contractor. Illustrated is a foyer to an assembly hall with lounge beyond. The mural in water paint on smooth plaster is one of a series done by members of the architect's staff.

Below: Detail of the front elevation of the Canley housing scheme which forms part of the plan for the reconstruction of Coventry. The designers were D. E. E. Gibson, City Architect, and the Deputy and Chief Assistant Architects. The use of reinforced concrete stairs, second floors and roofs is the main departure from peacetime construction of this type of housing.



CONTRIBUTORS TO THIS ISSUE . . .

We present in this issue a comprehensive account of the work of our Russian allies, by two acknowledged experts in the field of Soviet architecture and regional planning. Hans Blumenfeld, whose article was especially written for TASK, is an architectural graduate of Darmstadt University, who, prior to 1930, had worked with Adolf Loos in Vienna, and as a practising architect in this country. In that year he was invited by the Russian government to work with a large building trust in Moscow. Subsequently he was appointed to the Russian State City Planning Institute and planned the towns of Vladimir and Vyatka (now Kirov). From 1933 to 1935 he was employed by the Kirov Steel Works on the layout of workers' settlements and from 1935 to 1937 was with the Commissariats of Public Health and Education in Moscow. He has travelled and lectured extensively and is now working as a research assistant to the Philadelphia Housing Association. The drawings for Mr. Blumenfeld's article and the layout for the cover were made by Willo von Moltke, who is a student in the Department of Regional Planning at Harvard.

Hannes Meyer's account of architecture in the Soviet Union appeared early this year in the Mexican review 'Arquitectura.' The author sent TASK his revised English version, which has been prepared for publication with the kind assistance of Carola Bloch. A native of Switzerland, Mr. Meyer's early work was mainly as an architect for cooperatives in that country and in Belgium. From 1927 to 1930 he taught architecture at the Bauhaus, where he succeeded Walter Gropius as director. From 1930 to 1936 he worked in Russia as consultant-in-chief of GRIPOGOR (the National Institute of Urbanism), as a member of the first commission for the construction of the Palace of the Soviets, and on the general plan of Moscow. In 1933 he was put in charge of the section for town planning in Oriental Siberia where he worked on the site selection and plans of the capital of Birobidshan, and other towns. He was made a professor of the Academy of Architecture in Moscow in 1934 and has done a great deal of teaching, publishing and lecturing. For the last few years he has been working actively in Mexico.

Among our other contributors, Frederick Guthrie is at present working on housing administration at Hampton Roads, Virginia. He has been closely connected with Washington planning affairs for several years and recently edited the works of Frank Lloyd Wright for publication. Warren Radford is an architectural student at Harvard and in this capacity has chosen to review a book written largely for a student audience. He is awaiting call to the U. S. Army Air Force. Henry Reed asks to be described as a Harvard graduate and a property owner in Philadelphia. Mr. Reed is a keen student of the affairs of New York City and its planners. Christopher Tunnard is a member of the faculty of the new Department of Regional Planning at Harvard and has had ten years' experience in England as a site planner and a member of the MARS group. He recently enlisted in the Canadian armed forces. Robert Rosenberg, one of the originators of TASK, is working as a naval architect in Boston.

A FOREWORD . . .

"Our thinking and planning in the future must be global . . . For the peoples of the world intend to be free, not only for their political satisfaction but, also, for their economic advancement."

With these words, a United Nations' spokesman* ushered in a new era in world history. There no longer can be any doubt that the war is bringing to a crisis the sickness of an old world, with its oppression, exploitation, and unbridled business opportunism. The age of enterprise, as it has too generously been called, is drawing to a close, and some form of social and economic planning must take its place.

Planned human freedom is a magnificent objective. It is our task and our responsibility . . . a United Nations pledge to all humanity. In our own particular field of architecture and planning the responsibility of creating the physical structure for a free world is very great. Most of us are only vaguely aware of the rest of the world and its complex problems—political, economic and social. Our immediate task is to contribute what we can to victory and to learn what we can of the world we are fighting to shape anew.

Some of the problems which confront architect-planners are discussed in the following pages. We have been concerned to find out how United Nations planners are solving their dual task of organizing for war and for freedom. The valiant effort of workers in the British building trades, of students in China and Australia, of technicians behind the Urals . . . all are of vital significance to their allies here in architecture and construction. And lest there be too much complacency on the part of those who think that victory can be achieved without a struggle, there is a warning that the impractical dreamers, the reactionaries and the defeatists also have plans . . . but not for the world that we are making.

This number of TASK is dedicated to the architects, planners and allied technicians who have left the drafting boards to take up arms against the violators of our freedom. Some of them, perhaps, will read these pages. If so, it is our sincere hope that they will receive encouragement from the knowledge that in countries where physical planning has been carried out it has proved one of the foundations on which our victory will be built.

THE EDITORS.

* Wendell Willkie

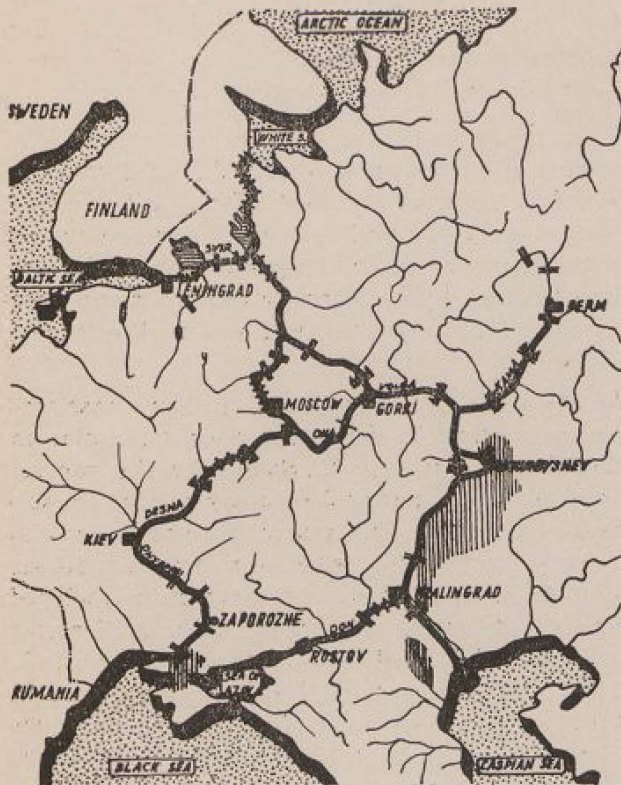
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Robinson Hall, Cambridge, Massachusetts

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REGIONAL and CITY PLANNING In the SOVIET UNION

by HANS BLUMENFELD



THE GREATER VOLGA AND THE GREATER DNIYER
A SYSTEM OF 15 FEET WATERWAYS CONNECTING MOSCOW WITH 5 SEAS, AND
PRODUCING 14 MILLION KW OF POWER AND IRRIGATING 4 MILLION ACRES.

LEGEND:

- | | | |
|--|---|------------------------|
| — RIVERS BEING MADE NAVIGABLE 15 FEET DEEP | + | DAM COMPLETED |
| - - - - - CANALS COMPLETED | + | DAM UNDER CONSTRUCTION |
| · · · · · CANALS UNDER CONST'N | + | DAM PROJECTED |
| IRRIGATION | | |

Growing Cities

We have long been used to thinking of Russia as a peasant country. Even now some people describe the unflinching heroism of the Red Army to the "mystical" love of the mushik for his soil. However, even the most "mystical" soil can not produce tanks and airplanes; they are the product of industries and cities which have grown up with incredible rapidity.

On January 1, 1939, one-third of the population of the Soviet Union, or 55.9 million people, lived

in cities. That is more than the entire population of Great Britain, though considerably less than the 94.6 millions living in cities or Metropolitan districts in the United States. One-half of the Soviet urban population or 27.4 million, lived in 82 cities with more than 100,000 inhabitants; these are comparable to 108 Metropolitan Districts in the same class in the U. S. A.

Twelve years earlier, or January 1, 1927, there had been only 33 Soviet cities of this size, and the entire urban population had been only 26.3 millions, less than half of the 1939 figure, and only slightly more than before the revolution. The city builders of the Soviet Union had to accommodate thirty million new city dwellers within little more than a decade.

Organization of City Planning

They were not too well prepared for this gigantic task. The medieval Russian cities had been not much more than big villages; the ancient urban culture of Transcaucasia and Central Asia had left great monuments, but hardly a living tradition. For Peter's new capital on the Neva the great city building art of the baroque period created its masterpiece on a gigantic scale; up to the middle of the nineteenth century the best architects of the country controlled its development by the means of the absolute state; many provincial cities of the 18th and early 19th also show the influence of this great tradition.

In spite of this, the rapid growth of cities during the half century following the abolition of serfdom was as chaotic in Russia as it was in America during the same period.

The October Revolution at once evoked a lively interest in city planning, but only after the intervention had been beaten off could practical work get under way. It was carried on mainly on the accepted lines of European city planning. New industrial settlements were built on the pattern of garden cities. The first of these were at the

Shatura power station, built on the peat bogs 100 miles south of Moscow. In existing cities zoning was established, improvements were made, such as new parks, widening and extension of streets, etc.; new industrial and residential quarters were laid out. Beyond this the plan did not extend; as yet no system had been worked out for schools, sanitary services, sports, recreation, and these functions were accommodated as the need developed.

However, already these early plans show some features characteristic of the changed social-economic order. Private property in land had ceased to exist; the municipality could freely dispose of the entire land in the interest of its citizens. As a consequence the plans show a neat and clearly designed pattern, and a much ampler provision of public green than would have been otherwise possible. A civic center is always strongly emphasized as a nucleus for the intense new political and social life of the workers. Despite the great impoverishment resulting from the 7 years of war, public ownership of land enabled the cities to carry out improvements which had been impossible in the more prosperous pre-war years. Baku reclaimed its waterfront for a splendid park. Tiflis built a wide avenue connecting the historic center with the new suburbs, and so on.

While the content thus was beginning to reflect the new structure of society, the method remained essentially unchanged. This was the period of the "N. E. P." when small private enterprise still predominated. Just as the economic planning organs of the government based their "control figures" mainly on interpretation of existing trends, so did the city planners base their forecasts on a continuation of past developments for an indefinite period, usually up to 100 years.

The five-year plan, initiated in 1928, brought a fundamental change. For the first time in the history of the Soviet Union—and of the world—forecasting of what people *might be expected to do* was replaced by a co-ordinated plan of what they *intended to do*. This radically changed the approach of the city planner. Now his work was no longer based on expectations of what might happen, but just as often never did happen.

The "General Plan" of the Soviet Union outlined an integrated all-inclusive program of rapidly growing industrial and cultural activity for 15 years in advance, in fairly detailed quantitative terms for every industry, every region, and every

city. The city planner had to design the physical framework for this definite social-economic program, as framework to be built within this definite period.

New organizations had to be created to solve these new problems. In the capitals of the constituent republics state city planning institutes were created: "Giprogor" in Moscow for Russia, "Giprograd" in Kharkov (later in Kiev) for the Ukraina, "Byelgorod" in Minsk for White Russia; these were followed by similar institutes in Tiflis for the three Transcaucasian states, and in Tashkent for the five republics of Central Asia.

After these institutes had trained a sufficient number of city planners who could stand on their own feet, without constant advice and supervision from the few leading specialists concentrated in the big centers, planning was more and more decentralised. City planning organizations were set up in the provinces, and also in the largest cities.

At the same time the "People's Commissariats" (corresponding to departments or ministries in the United States or England) for the various branches of the national economy created organizations charged with planning workers' settlements in connection with new factories, mines, etc. As many of these new enterprises employed tens of thousands of workers, these settlements often were full-sized cities, such as Magnitogorsk, built for the workers of the iron ore mines, blast furnaces and steel mills of that great metallurgical combine built in the nomad steppes on the Ural river. The planning organizations of the Commissariats concentrate on the planning of new towns, while the state, provincial, and local institutes specialize in the reconstruction and extension of the old cities. However, there is no hard and fast division, neither between these two groups, nor between the fields of the various local organizations. Industrial managers and city councils have a certain leeway in the choice of the organization which they want to entrust with planning their city. While this has occasionally led to duplication of work and an irrational dispersion of forces, the ensuing socialist competition has been helpful in preventing the planning organizations from falling into a dead routine.

At the beginning of the first five year plan every industry set out to plan its factory and settlement independently. Thus, near Moscow, the settlements "Opticogorsk" and "Avio-Gorod" were built by the optical and airplane industries

respectively, side-by-side, without any connection. Such methods often resulted in irrational use of land, complicated and costly communications, lack of suitable territory for housing, pollution of air and water, and duplication of public utilities. This confusion and waste caused the industrial commissariats to enter the field of regional planning. Usually the industry which was most important in a given region took the lead. For a while there was a tendency to regard regional planning merely as an extension of the planning of industrial combines, with which these organizations had long been familiar, and to divorce it entirely from city planning which was regarded merely as the planning of "inhabited points." Soon, however, methods of comprehensive regional planning were worked out.

Social Planning and Physical Planning

Thus the Soviet Union approached regional planning from a point of view opposite to that held by the planners of America and Europe. Here the concept of planning had gradually been widened from the individual building to the block, from the block to the city, from the city to the region. At this point—if not earlier—the planners had to face the fact that physical planning had to be based on economic planning, and begun to venture into the field of distribution of industry, where they found themselves largely restricted to theoretical studies.

While this development from the smaller to the larger unit was not entirely without a parallel in the Soviet Union, the main trend went in the opposite direction; from the whole to the part. Here physical planning of the region could start from the solid foundation of the General State Plan for the economic and social life of the nation. Already in 1920, at the most desperate period of their war for survival, the leaders of the Soviet Union had the faith and vision to establish the "Goelro," the State Electrification Commission, which worked out a plan for the utilization of all resources of energy in the country. From this starting point all resources of the nation have been gradually explored. Plans are worked out both "vertically" by industries, and "horizontally" by territorial units. They are not limited to economics but include also cultural activities, education, art, and science.

All this planning is called "planirovanya" while the planning of a block or a city is called, "planirovka." It is hardly an accident that the Russian

language is the only one which has two distinct terms for these two types of what we call "planning." They have the word because they have the thing. "Planirovanya" may be translated by "social planning," while "planirovka" corresponds roughly to "physical planning." *Planirovanya* determines the quantity and timing, and also the point of any new construction. "A refinery with an assumed production of "x" tons with "y" workers will be built in the "z" oil fields in 1940; it will have to receive a peak load of "a" tons by railroad and will consume "b" gallons of water daily, etc." Here "planirovanya" ends and "planirovka" starts with allotting a definite piece of land with definite boundaries to the refinery and to the settlement for the workers, and goes on to determine the layout of streets, railroads, water and sewer mains. Normally, social planning must be completed before physical planning sets in; however, often the work of physical planning leads to proposals, which modify the original social-economic plan. Gradually a close collaboration between the two branches has been established. In this respect the evolution also went in the opposite direction to that of the west; we are just beginning to differentiate between the methods of social and of physical planning. In the Soviet Union they have integrated "planirovanya" and "planirovka," each of which had grown up separately, until they met in the task of regional planning. At this time the planned distribution of industry, which we are inclined to regard as the main task of "Regional Planning," was already far advanced.

The Distribution of Productive Forces

Tsarist Russia, despite its backwardness and dependence on foreign capital, showed the distribution of productive forces characteristic of imperialism. Manufacturing industries were concentrated around the capitals of the ruling nations, the Russians, while the territory of the subject nations was mainly a source of raw materials and a market for the Metropolitan industry. Raw cotton from Central Asia was shipped to Moscow or Ivanovo-Vosnyessensk, and cotton cloth went back to Tashkent. Iron and steel from the Ukraina went to Petersburg and Moscow, and machinery and tools traveled back to the Ukraina. Only the most easily accessible sources of energy: wood, Caucasian oil, and Donets coal, were used. They were carried over long distances and used wastefully, while other sources remained untouched.

The Soviets started by taking an inventory of the national wealth. A vast and systematic geological exploration of one-sixth of the earth has been going on for twenty years and has resulted in the discovery of deposits of coal and oil eight times as great as those previously known, in addition to many other mineral resources of all kinds.

On this basis the five-year plan could undertake a systematic redistribution of industry, agriculture, and population, guided by the following principles:

1. Develop industries close to the sources of raw material and energy, so as to avoid waste in transportation.
2. Distribute industry more or less evenly over the entire country, so as to create nuclei of industrial and urban culture in the backward peasant regions, and prepare the way for the elimination of the historical antagonism of city and country.
3. Accelerate the industrialization of the national republics and regions, so as to enable them to become equals in fact, not only in law, with Russia.
4. Specialize production in accordance with the natural and cultural resources of each particular region, but
5. Provide a variety of branches of production so that every region may achieve a certain completeness—not autarchy—within its territory.

In addition, considerations of national defense were never forgotten. They pointed largely in the same direction as did the basic principles: to a shifting of the weight to the formerly undeveloped regions of the east; and to a policy of enabling every region to carry on without outside support.

On the other hand the necessity to use all human resources made itself felt. In many regions traditional peasant handicrafts had developed particular skills, and determined the location of factories using these skills. Experienced industrial workers and specialists were largely concentrated in the old centers, especially Moscow and Leningrad—and they wanted to stay there.

Some planners contended that Marxian theory called for immediate reduction of these giant cities; but the Soviet leaders understood that these historic centers of proletarian culture had

still a great role to play. They tried to keep their growth within reasonable limits, but they did not attempt to freeze it. During the first five-year plan new and complicated branches of production, such as ball-bearings and turbines, could find the necessary skilled employees only in Moscow and Leningrad. After the great new plants had schooled millions of new workers, and after the new industrial nuclei had outgrown their first rough pioneer stage, industries dependent on high skill could be decentralized. In 1932 the government prohibited the erection of new factories in Moscow and Leningrad, and set an upper limit of five millions for the growth of Moscow. The management of industry was also increasingly decentralized; the steel industry was divided into four corporations for the central, southern, eastern, and far-eastern regions. The housing managers in Moscow were instructed to accept no new tenants who were not employed, and the managers of factories and offices were bound to hire no employees who could not show that they were registered as tenants. Still the city kept on growing at almost the same rate as did the urban population generally, and was only little short of the 5 million limit at the outbreak of the war.

The continued growth of Moscow and Leningrad despite all restrictive measures might well be pondered by those regionalists who regard the big city as a purely artificial product.

The Creation of Industrial Nuclei

While trying to prevent a limitless growth of any city, the Soviets do not favor a complete dispersion of the urban population. They believe that the antagonism of city and country-side can best be overcome by developing industrial nuclei of sufficient strength to serve as centers of urban culture for the surrounding agricultural region; either by building factories in old provincial towns which had previously been merely centers of trade or administration, or by the creation of new cities. It was found that under existing conditions cities under 50,000 usually could develop neither satisfactory municipal services and public utilities, nor a full-blooded cultural life. Without rejecting smaller towns, or the two historical capitals, Soviet authorities are inclined to regard cities of between 50,000 and 1,000,000 inhabitants as most desirable. As the following table shows, they have succeeded in making cities in this class the dominant type of urban environment.

(Figures for the U. S. A. given for comparison, refer to cities under 50,000, and to Metropolitan Areas over 50,000 inhabitants.)

Percentage of Urban Population Living in Cities of Varying Size

SIZE OF CITY	U.S.S.R. 1927	U.S.S.R. 1939	U.S.A. 1940
Under 50,000	47.2	38.9	33.3
50,000—999,999	38.7	48.0	30.8
1,000,000 and over	14.1	13.1	35.9
Total	100.0	100.0	100.0

Water Power

The new industrial nuclei were mostly developed on the basis of a "combinat," a co-ordinated multiple-purpose development, based on resources of energy or of raw materials. The famous Dnyepyr dam, now destroyed, transformed the sleepy little town of Zaporoshe into a modern industrial city of 300,000 inhabitants. Aluminum plants, steel works, and a region of intense agriculture on irrigated land were set in motion by the 600,000 kw of the hydro-electric plant, leaving a surplus to be carried off by the high-tension grid which united the industrial region of the lower Dnyepyr with the Donets-Basin. The dam was only the first of eight, designed not only for power and navigation, but also for drainage of over a million acres of swampland on the upper reaches of the river, and for irrigation of an equal territory of arid steppes in the Crimea.

In Central Asia, where agriculture is entirely dependent on irrigation, hundred of thousands of acres of steppe lands were turned into wheat and cotton fields, orchards and vineyards, by the construction of dams on the Chirchik in Uzbekistan, and of the Vaksh in Tadjikistan. As a result, the rural population of these two republics has increased by one and a half millions, or one-third, between 1927 and 1939, despite the mechanisation of agriculture. At the same time, new electrified factories employed scores of thousands of new workers. How profoundly and rapidly the creation of these new industrial nuclei transformed entire regions, may be seen in the Tadjik republic, which borders on Afghanistan and at one point is only a few miles distant from the border of India. Here literacy increased from 3.7% to 71.7% during these twelve years.

The most ambitious water-power project is the "Greater Volga," consisting of nine dams on the Volga itself, and eight on its main tributaries, the Kama and the Oka, with a total capacity of 10 mill kw. Four dams had been completed by the end of 1940, and several more were under construction, including the great dam at Kuibyshev, with a capacity of 2.4 mill kw., one quarter more than Grand Coulee. Together with the Volga-Moscow and the Baltic-White Sea canals completed several years ago, and the Volga-Dam and Volga-Oncega canals, under construction, the "greater Volga" will create a system of inland waterways 15 feet deep, so that sea-going vessels from the Black and Caspian Seas in the South, and from the Baltic and White Seas in the North, will meet at the docks of Moscow. The third, and perhaps most important, purpose of the "greater Volga" is the irrigation of 10 million acres of steppe lands, stretching on the left bank of the river from Kuibyshev to below Stalingrad. The effect of this profound change of nature by man will extend to the Caspian Sea, lowering its level by about an inch annually. This may have to be offset by shutting off the Korabugas-Bay, which extends from the eastern shore of the Caspian into the "black desert" of Turkmenistan, so as to reduce the evaporating surface of the sea. (See map.)

The first link of the "greater Volga", the Volga-Moscow canal, is in itself a multiple-purpose project. In addition to providing a way for navigation and producing power, it has doubled the water supply of Moscow and created a belt of recreation areas with artificial lakes around the capital. In the city itself, the Moskva, formerly in summertime not much better than an open sewer, has been transformed into a deep, navigable river. The 11 bridges which cross it, have been rebuilt at a higher level, and new speedways, following the embankments, now pass under their arches. In addition, storage basins of the canal are utilized to balance out the consumption of energy. During slack hours the excess energy produced by the city's lignite-burning electro stations pump water from the Volga up to the basins; during peak hours this water is let down to the Moskova, releasing energy in its fall.

The "Tets"

The city's stations in turn produce not only energy, but steam and hot water for industrial and heating purposes. 85% of all buildings

in Moscow are heated by central heat from these large "Tets" (Heat—electric—centrals). This centralized heat supply is a strong factor in favor of concentrating usable space in large tall buildings.

Wherever possible, power stations are built as "Tets." With fuels of high caloric value they can be placed near to industry and populated places. However, many regions of the Soviet Union possess only fuels of low caloric value, lignites, peat, oil-shales. Here the "Tets" is built on or near the deposit, together with a factory which will utilize the heat. So the peat bogs near Gorky gave rise to the paper works of Balakhna, and to a new city built to house the employees of these works.

The U K K

Of decisive importance for the whole future of the Soviet Union—and of the world—was the creation of a new basis of heavy industry in the east, the so-called UKK (Ural-Kurnetsk-Kombinat.) It had long been known that near Kuznetsk, in the heart of Siberia were hidden the world's largest deposits of coal, and that the iron ores of Magnitogorsk in the Urals were exceedingly rich. However, the "experts" said that it was impossible to combine these two resources over a distance of 1200 miles. The Soviets were not dismayed and built powerful blast furnaces and steel works at either end. Their courage was rewarded. Not only did the trains roll to the east with iron ore, and carry coal back, but the creation of these two great nuclei of industrial culture led to more intensive exploration of these formerly uninhabited regions. As a result, rich deposits of coal were discovered at Karaganda, only 300 miles from Magnitogorsk, and iron ore was found in the Altai Mountains beyond Kuznetsk. Gradually each end of the U.K.K. has become independent of the other. It is these two great industrial centers, non-existent twelve years ago, which furnish most of the arms to the men who are defending our frontiers at Stalin-grad.

Redistribution of Agriculture

The workers in these new industrial centers had to be fed. Prior to the revolution wheat had been grown only in the South. Today, new varieties have been developed, and wheat is grown in the Moscow region. Ceaseless labor has produced varieties not only of grains, but of a multitude of vegetables and fruits as well, which will grow in

the hard climate of the north and east, even beyond the polar circle. During the first five-year plan, when large quantities of grain, cotton and sugar had to be produced as quickly as possible, "monoculture" was widespread. Today, while every region has its specialty, diversified farming prevails.

The leading role in the transformation of agriculture is played by the "M.T.S." (machine and tractor stations.) There are over 6000 of them, owned by the state. On the basis of contracts with the neighboring "kolkhozi" (co-operative farms) they lend them their tractors, harvester-combines, and other machines, together with their skilled machinists, against a certain proportion of the harvest. But beyond that they are centers of agricultural science, and of cultural and political life for the entire district. Usually they are located in the center of the region ("rayon"), as the basic administrative unit above the township and cities is called. A "region" corresponds roughly to an American county. As the "Kolkhozi" are in most cases co-extensive with the old villages, their size varies widely, and so does the number of kolkhozi served by one M.T.S. As an average, there are about 80 farms to one kolkhoz, and about 40 kolkhozi to one machine and tractor station.

Either at the M.T.S. or in the kolkhoz small processing shops or factories are located. The all-year 'round use of the farmer's labor power is facilitated by this close connection.

In regions where traditional crafts are practiced, the farmers usually have organized "industrial-kolkhozi," in which they have pooled both their industrial and agricultural resources and often, aided by state credit, built small electrified factories. The well-known cigaret cases out of birch roots, for instance, are produced by such an agro-industrial co-operative in the region of Kirov (formerly Vyatka.)

Methods of Regional Planning

The location of the machine and tractor stations, and the organization of the "rayon" around its center, are important tasks of "Regional Planning" in the American sense of the word. However, they usually do not involve "rayonnaya planirovka," physical planning. This task became urgent only in more densely populated areas, where various needs had to be satisfied in a limited space. One Russian author (Pershin)

states, "The task of the regional planner consists in choosing for every industry out of the general land fund of the region, a territory which offers the most favorable natural economic conditions for the given type of production." "Industry" is here taken in the broadest sense, including agriculture, education, health resorts, etc.

While the social-economic plan, as worked out by the (economic) planning organizations, served as a starting point, it proved insufficient for the purposes of physical planning of a region, (or of a city.) The economic plan was worked out in detail for five years, in general outline for 15 years. With the notable exception of the planners of energy resources, most local planners gave little thought to the more distant future. However, the objects of physical planning last far longer than 15 years. Therefore, the organizations charged with physical planning had to do some economic planning of their own. They had to explore the perspectives beyond the fifteen year period. The methods of exploring this second phase resembled to some extent those used in an unplanned economy: they are based mainly on forecasting future possibilities on the basis of natural resources and of past developments. There are, however, two important modifications. The "past" includes the near future for about 15 years ahead; and the planner knows that the rational development of existing resources will not be stifled by competing vested interests.

Physical planning for these two phases differs correspondingly. For the next 15 years it consists in *allotting* definite pieces of land for specific uses and in designing the technical equipment (transportation lines, utilities, etc.) For the more distant future it cannot go beyond *reserving* territory for future extension of the various uses and for additional equipment.

The work is usually carried out in three stages, which answer three different questions:

1. Technico-economical description.
What are the existing conditions and the perspectives?
2. Report on tasks of regional plan.
What is to be planned?
3. The scheme:
How is it to be planned?
The first stage, describes the problem.
The second stage formulates the questions.
The third stage answers them.

As the work progresses, the emphasis shifts from the long-range perspective to the solution of the practical tasks of the immediate future. The "technico-economical description" normally covers the following field:

1. Geological and hydrological conditions
2. Climate
3. Soil and subsoil
4. Resources of energy and heat
5. Agriculture and forestry
6. Industry
7. Transport and communications
8. History of region
9. Population
10. Existing buildings (housing, utilities, etc.)

The "tasks" vary widely, but always include an overall land use plan. The border line between the tasks of regional and city planning is necessarily fluid. Not always has it been possible to follow the logical sequence from overall regional planning to detailed planning of the individual city. Often it was the city planner who in the course of his work discovered the need for regional planning.

Various Types of Regions

The first regional plans were made in mining regions such as Nishny-Tagil in the Urals, and Kemerovo in the Kusnetsk basin. Here the division of territory between mines, factories and workers settlements was the main problem, which had to be solved together with problems of transportation, water supply, and prevention of pollution of water and air.

In other regions, for example around Vyksa and Kulebaki on the Oka river, or around Vyatka (now Kirov) in the north, a number of small industrial villages had grown up, utilizing century-old skills of peasant craftsmen. Here it was necessary to co-ordinate these industries, to organize a comprehensive system of roads and utilities, and to distribute centers for education, medical care, and recreation.

Particularly interesting are the regions of health resorts. Around Sotshi, on the sunny coast of the Black Sea, mountains, forests, and sulphur springs attract many thousands of patients and tourists every year. Here a territory of 40,000 acres, stretched out over 25 miles, has been divided into three zones. Next to the sulphur springs is the quiet climatic-therapeutic zone for 5300 beds; adjacent the climatic-prophylactic

zone for 4450 beds; and farther along the beach the noisier bathing-climatic zone for 15,250 beds. 2500 acres are reserved for a permanent population up to 100,000 inhabitants with a contiguous zone of fruit and vegetable gardens. These various elements are linked together by a magnificent boulevard which is a part of the coastal highway from Novorossisk to Batum.

The Southern shores of the Crimea, protected by the steep 5000 foot Yaila ridge against the northern winds, has also been replanned. Following the principle of "choosing for every industry a territory which offers the most favorable natural conditions the planners, under the leadership of Prof. M. Y. Ginsburg, established a sequence of uses, beginning with those which made the greatest number of demands on their environment. These were the tuberculosis sanatoria; next came the choice of sites for general sanatoria, followed by tourist zones and by agricultural zones for vineyards, orchards, and tobacco fields. In addition to improving the existing road, a new road about 1500 feet above sea level was planned. Along this road, midway between the health and tourist zones along the beach and the agricultural zones in the foothills, new villages were located. In addition to these horizontal communications several funicular railroads were planned, serving as a backbone for parks which stretch from the beach through the orchards of the foothills and the wooded slopes higher up to the plateau on top of the ridge. Factories for processing of food are located within walking distance of the old Tatar villages, in order to strengthen the economic basis of the native national culture. Some factories provide suitable employment for recuperating patients of the tuberculosis sanatoria.

For the improvement of the scant water supply three measures were initiated: Reforestation, building of storage dams, and substitution of seawater for uses such as street cleaning.

APSHERON: An example of regional planning

The Apsheron Peninsula is formed by the easternmost part of the Caucasus mountains, butting out into the Caspian Sea. The peninsula gradually flattens out from fairly steep hills to a barren desert plain, covering about 600 square miles. Here, in and around Baku, lies the world's richest deposit of oil.

Baku, formerly a city of narrow dingy streets, surrounded by dismal agglomerations of shacks,

had been transformed since the revolution into one of the most modern and attractive cities of the Soviet Union, with wide asphalt-paved avenues, large parks, and new workers' quarters. A number of new settlements had also been built on Apsheron, when and where the need arose.

In 1932 the city council of Baku and the state-owned corporation "Az-Neft" (Azerbeidshan-Oil) jointly concluded a contract with the Russian state city planning institute (Giprogor) for a regional plan for the entire peninsula. Giprogor organized a "brigade" under the leadership of the young architect Semyonov-Prozerovsky, composed as follows:

- 3 economists
- 3 transportation engineers
- 2 agricultural engineers
- 4 architects—city planners
- 6 draftsmen
- 1 consultant on city planning
- 1 consultant on transportation

Simultaneously "Az-Neft" organized a brigade of 24 to co-operate with "Giprogor" on questions of the oil industry. About 20 other persons co-operated as representatives of heavy and light industry, of housing and municipal services.

The Baku branch of the Academy of Science co-operated on questions of natural conditions, and the Institute of Urban Sanitation on questions of public health.

The central problem in this case was the redistribution of population. 460,000 people lived in the city of Baku and 220,000 in 53 other communities. Oil production was to be increased in new fields farther away from the city. No increase in the capacity of refineries was planned, as new refineries were to be built close to the centers of consumption, at the end of newly built pipe-lines. Workers of other industries however were to increase from 57,000 in 1932 to 130,000 in 1942.

Additional complications were created by an unfavorable climate with very hot summers and stormy winters, by lack of water, and by a poorly developed agriculture.

The plan provides for the accommodation of 1,200,000 people in the region, an increase of 500,000 in 10 years. In the city residential and industrial zones are to be more clearly separated, and the density reduced by the creation of new residential districts. New factories are to be

built outside the city. Erection of workers' settlements within walking distance of the oil wells was rejected for sanitary reasons and because of the dispersal of the wells. Some of the existing settlements were relinquished for sanitary reasons, others because of unfavorable location in relation to industry.

Based on these considerations the brigade worked out three schemes. The first one proposed to concentrate the population in Baku and in the two existing towns of Soumgant and Bilgysa (fig. 1), which would be transformed into cities of about 150,000-200,000. These two cities would be located at the two points where natural conditions were most favorable; they could easily be well equipped and could develop a cultural life of their own.

However, workers would have to travel distances of up to 22 miles to their place of work.

The second variant was based on the establishment of 12 to 15 settlements, close to each group of fields, each with 15-20,000 inhabitants.

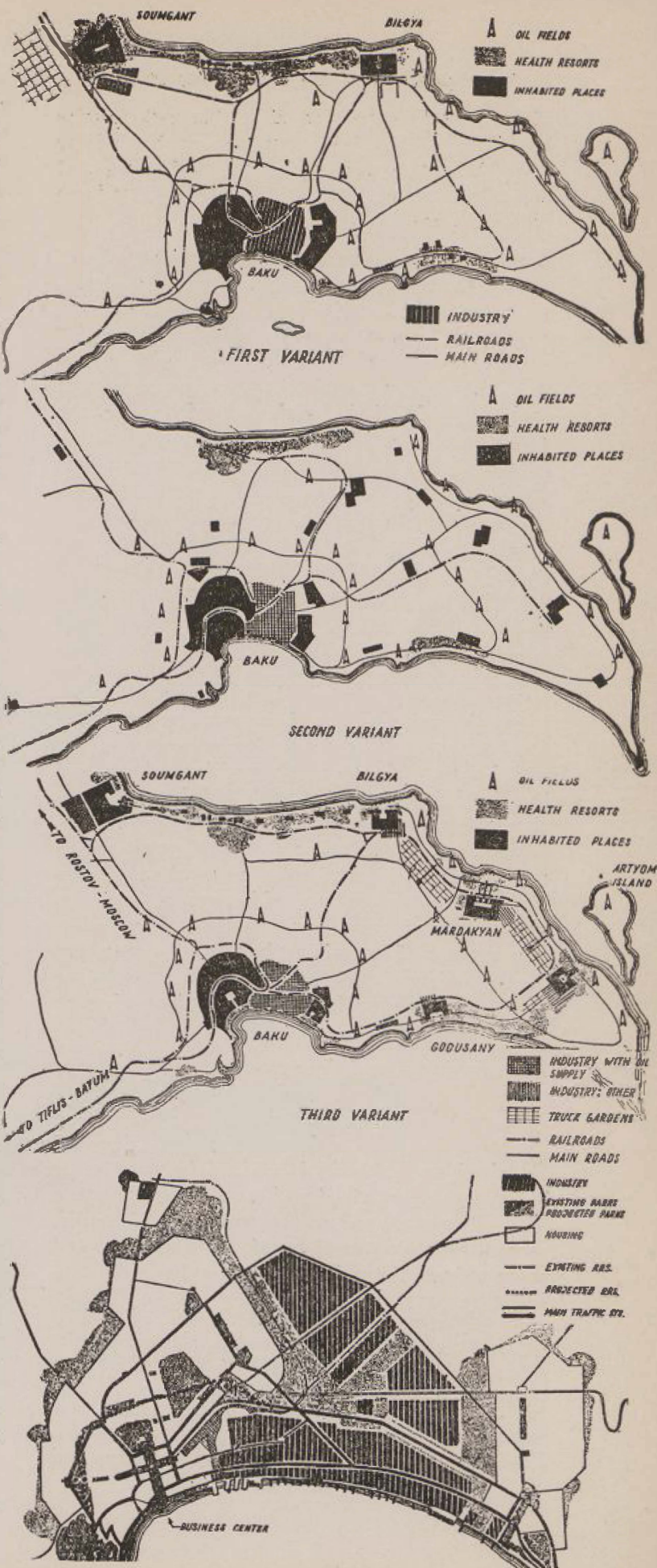
In this case the distance from the place of work would average 4 miles, and many workers could walk to work. However, some places would be located in unfavorable natural conditions, and it would be difficult to organize municipal services and cultural life on so small a scale, or to provide good transportation to Baku.

The third scheme proposed the creation of five cities of 60-80,000 inhabitants each (in addition to 700,000 in Baku). All these cities are located on the shore under favorable climatic conditions, and have the possibility of using local water transportation. They can be easily served by suburban railroads and roads, and are big enough to support efficient municipal services and a full cultural life.

The average distance to work does not exceed 5 miles and can be easily covered by railroad or bus. Railroads and roads, water and sewer, recreational and agricultural zones fit well into this pattern.

This last proposal was accepted. The execution has been modified by the shortage of materials which retarded the construction of housing and utilities in the new cities. As a result, the increasing population crowded into the central city, where housing, schools, and utilities, though overloaded, were available. The 1939 census showed 809,000 people living in Baku, instead of the 700,000 planned for 1942.

(Fig. 1) →



Work and Pay of the Soviet City Planner

The size and composition of the "brigade" varies according to the task, but the method of the mixed brigade is universal in the field of regional and city planning. At least one architect and one economist are always included.

After having signed the contract with the "client" (city, industry, etc.) the management of the planning institute concludes an agreement with a group of its own workers, called a "brigade," which may have been formed previously or may be formed for this specific task. The agreement specifies in detail the work to be done, e. g. the subjects to be covered by the investigation, the number, type and scale of drawings, etc., also the deadline for completion of the work, the consultants or other outside help which the management will put at the disposal of the brigade. As in all Soviet enterprises, the payment is based on piecework. A detailed schedule of rates for every piece of work has been worked out between the engineers section of the National Trade Union Council and the Government organizations concerned, and is incorporated in the agreement between the union local and the management. For the land use plan of a city for instance the rate would vary with the number of inhabitants and the size of the territory, with additions for complicated contours and (or) for a complicated socio-economic structure. For a field of work so far removed from the mechanical as architectural design there is naturally a wide margin for interpretation; and there was frequently a considerable amount of bargaining between the members of the brigade and the management as to the category to which this particular piece of work should belong.

After having signed the agreement with the management, the brigade leader allots the work to the members of his brigade, stating in writing the type of work to be done, the payment due, and the deadline. Nobody is obliged to start work before he has received and countersigned such a slip. He cannot refuse the work, but if he disagrees, he states so alongside his signature and seeks redress through the union or the courts.

Only types of work not foreseen in the schedule are paid on a flat salary basis. As a rule, the actual earnings are 50% to 100% higher than the nominal salaries, and with architects often amount to several thousand rubles a month.

For high quality, speed, high productivity, and

savings in cost, premiums are paid. The brigades compete with each other as to their achievements, which are discussed at frequent production meetings.

Before the work is accepted by the management, it is presented to the "technical council" which is composed of the leading specialists of the organization, and of outside experts. The leader of the brigade presents the work. One other member of the organization, appointed by the management, gives a critical analysis; there follows a cross-fire of questions and a lively discussion in which all interested members of the organization participate, in addition to the members of the technical council. The council formulates its conclusions, either accepting the project, or more often, asking for presentation of additional material, or for specific changes. After definite acceptance the project goes to the client. Here it is presented to the city council, to meetings in factories and clubs, and the ensuing discussion often leads to further modifications of the plan.

Theory and Practice of City Planning

This method of work has proved its worth in practice. In 1940 town planning work had been undertaken in 225 cities in the Russian Republic alone; 145 of these plans were completed. At the beginning of the five-year plan periods there had been a wide rift between city planning and actual city building. Years were spent on research, acres of paper were covered with beautiful drawings and water colors of future dream cities, complete to the most minute detail. The project for the city of Gorky (Nishny-Novgorod) weighed four tons!

Theorists claimed that the socialist city would be totally different from anything ever seen before. The "desurbanists" wanted to scatter the population all over the country in little individual houses along the roads, with a car for every house—at a time when the country's first automobile factory was still in the blueprint stage. The "urbanists" dreamed of skyscrapers housing 3000 persons apiece—at a time when the foundations for the steel mills had scarcely been laid. Meanwhile, the workers building the steel mills and the automobile factories had to be housed. Wooden dormitories were built. The workers needed food, recreation, medical care, dining halls. stores, clubs, movies, clinics, hospitals, were added

to the dormitories. The workers brought their families; nurseries, kindergartens, schools were erected. Water and sewer mains were installed, streets were paved. By the time the plans for the beautiful dream city arrived from Moscow, a whole pioneer town was already there, alive and kicking.

Even if the plans were completed in time, things often were not much different. The plan might place the residential section at a distance of several miles from the factory gate in order to protect the houses from the smoke. But there were no roads, no trolleys, no water and sewer mains, and no steel and cement to build them, and so a "temporary" settlement was built, close to the factory gate, in a place where the plan had shown the virgin green of the "protective zone".

The city planners raved at the builders, who violated all sound principles of city planning, and the builders cursed the planners, who disregarded the critical lack of materials. It was an uphill fight. Gradually order emerged out of chaos. A balance was struck between the desirable and the possible. Soviet city planning became realistic. A workable method was found.

Methods of Planning and Building

The time for planning was shortened. The work is now carried on in three stages. The "investigation" collects and presents the pertinent data in written and graphic form. The "scheme" is essentially a land use plan. It is followed by a plan for the actual construction to be undertaken in the immediate future, within three to five years. The sequence in which other parts of the city are to be developed is also an integral part of the scheme, but detailed plans for these subsequent developments are left to the future. They have to conform to the scheme, which, once accepted, is legally binding. It is enforced by two municipal agencies: the city land department, which holds all land within the city limits, and the municipal building control which issues building permits.

In the hands of the city are also all public utilities and means of urban transportation, and all schools. Of the dwelling houses, stores, shops, theatres, etc. many are owned by the city, but others, as well as most industrial buildings, colleges, etc. are built and owned by state or federal organizations, co-operatives, trade unions, and others, and subject to municipal control only through the two departments mentioned above.

In the large cities the city planning divisions co-operate closely with the land department and the building control. Where such guidance is lacking, the translation of the city plan into practice is not always satisfactory. As the number of architect-planners grows, more and more cities are able to establish their own permanent city planning departments, and to guide all building activities going on in the city towards the realization of the plan.

The Land Use Plan

Soviet cities are primarily centers of production, and their plan is largely determined by the distribution of industry. For a while a theory was popular which regarded the radial-concentric plan as feudal, the grid-iron scheme as capitalist, and claimed that the typical shape of the socialist city was a broad ribbon composed of parallel zones. The factories, built along a railroad or waterway, were to form the industrial zone. The following "green" zone was to isolate the third, or residential zone from industrial nuisances.

Opposite every factory was to be a settlement for its workers, so that they would be able to walk to work across the green zone. Those working in other factories would commute on the railroad which was to tie together the whole string of factory-plus-settlement units. The industrial and the housing units could both freely expand at right angles to the flow of the ribbon, growing in opposite directions.

The plan of Stalingrad—now familiar to American newspaper readers—roughly corresponds to this scheme. Six industrial centers are situated on the right bank of the Volga over a distance of 30 miles, and are connected by a railroad running parallel to the river. Each has its own workers settlement, protected from the factories by a green strip. In addition, there are parks between the various groups of factories, connecting the residential sections with the banks of the Volga.

However, as a general rule the scheme was not accepted, partly because it ignored the need for a city center, but principally because it was felt that no general abstract scheme could claim to be the socialist city. Every city had to work out its own scheme corresponding to its specific natural and historical conditions. The valuable elements of this theory however were retained. The various use zones are always clearly defined. Level sites accessible to railroad and water transport

are allotted to industries and warehouses. Institutes of technical education and research, closely connected with practical work, are included in the industrial zone. The residential zone is always isolated from industry by a protective green zone, varying in width from 200 feet to 3 miles, according to the character of the industry. In addition, suitable territory is used for a park or system of parks. Wherever there is a river or lake, a considerable part of the waterfront is used for recreation. The residential territory is usually divided into several residential sections by park strips, so that there is a public park in easy walking distance of every dwelling. Often the schools are located in this park strip, making the playgrounds immediately accessible to the students.

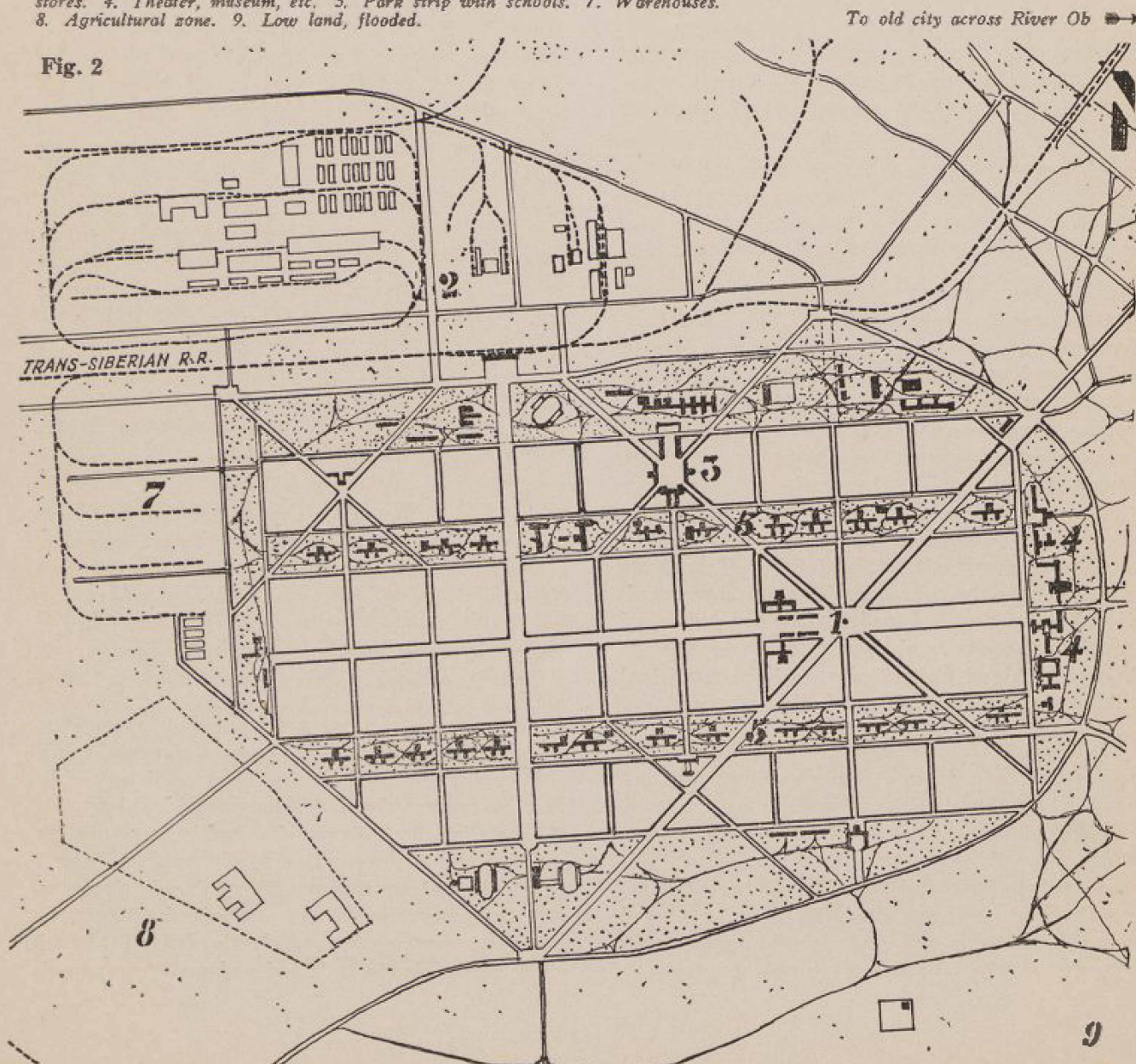
The plan for the new part of the city of Novo-Sibirsk clearly shows all these elements (fig. 2). Novo-Sibirsk, the "Siberian Chicago," is located on the right bank of the river Ob. The new settlement, built on the left bank at a distance of several miles from the old center for the workers of the big new machine building plant, is really a satellite city. Because of the square shape and the level surface of the plateau, the plan is more schematic than in most other Soviet cities; for this very reason all typical elements stand out very clearly.

Much attention is given to climatic conditions, especially to the direction of prevailing winds. Wherever possible, the residential zone is estab-

NEW PART OF NOVO-SIBIRSK ON LEFT BANK OF RIVER OB

1. Civic center, city hall, etc. 2. Railroad station and factory. 3. Department stores. 4. Theater, museum, etc. 5. Park strip with schools. 7. Warehouses. 8. Agricultural zone. 9. Low land, flooded.

Fig. 2



lished windward of the industrial zone. Careful studies are made of the "micro-climate," the differences between various parts of the cities as to strength and direction of winds, temperature, humidity, insolation, or fog. The graphical material presented as part of the "investigation" preceding the scheme always includes a map showing "territory unfit for habitation." Here, in addition to land reserved for other uses, are shown all parts of the city which have rough contours, or a high water table, or poor ground, or may be affected by smoke or other nuisances. Only the remaining territory is allotted to residential and kindred uses, while most of the "unsuitable" territory is given over to parks.

A comparison of the percentages of the city territories allotted to various uses in Soviet and American cities respectively shows a higher share for industry and especially for parks than in our cities, and relatively less land allotted to residential use and to streets. The figures given in the following table for Moscow and for Vladimir are fairly typical. Vladimir is a provincial city with a planned population of 110,000. The park territory includes neither green spaces inside the superblock, nor the forest belt surrounding Moscow.

Land Use	Moscow	Vladimir
Residential	24%	28%
Parks and Cemeteries	24%	22%
Industry	12%	24%
Public Buildings (Schools, Hospitals, Stores, etc.)	12%	9%
Railroads and warehouses	6%	7%
Streets and squares	15%	8%
Water	7%	1%
Total	100%	100%

While the percentages allotted to different land uses show a remarkable similarity in many cities, this is not the result of any predetermined percentage distribution, but the effect of the application of identical methods to cities of a more or less similar social-economic structure.

The "brigade" charged with planning a city starts by ascertaining the needs of every industry and of every institution in conferences with their managers. Every factory has its planning department, and fairly accurate figures at least for five years in advance are available as to the amount of production, the quantity of fuel, raw material, water, power, and heat needed, and the number and type of workers.

For the more distant future at least up to 15 years, and also for future factories, such data are available in the planning departments of the various industries. Beyond this period, the perspectives worked out by the "brigade" in collaboration with the local and provincial planning departments determine the type of industry likely to be located in this particular city, and estimates as to their need of territory, manpower and energy.

The factories, co-operatives, schools and hospitals, discuss with the city planners their need for additional territory, the possibility and desirability of transfer to a new location, their desires and complaints as to transportation, sanitary conditions, and so on. The trade union committees always take an active part in these discussions, and often public meetings are called in the factories or in the neighborhoods. Such meetings are of decisive importance in determining the location and type of the workers houses, of parks and playgrounds, of shopping facilities, theatres, and all forms of recreation and amusement.

While the plan of the city, once confirmed, is legally binding, no plan would have any chance of confirmation, much less of execution, without the consent of all important organizations in the community. City planning, as all planning in the Soviet Union, consists largely in the stimulation and co-ordination of the plans of smaller organizations, and ultimately of individuals.

City planning and city building are matters of public interest. They are frequently discussed in lectures and meetings, and in the press. Every day hundreds of persons visit the permanent exhibit devoted to the reconstruction of Moscow. Here, in addition to numerous maps, charts and drawings, they view a model of the future city, covering a surface of about one thousand feet. Having taken in the overall "airplane view" of the city from an amphitheatre, they step down to the floor. The model consists of three sections which move apart, and every visitor can study his own neighborhood at close view.

Various Elements of the City Plan

Economic planning makes it possible to calculate with a reasonable degree of exactness the future population of the city. There were heated discussions whether these calculations should be based exclusively on the "functional approach," i. e. on the number of persons employed multiplied by a "family co-efficient" for dependents, or

on the "genetic" approach, i. e. anticipation of natural growth of the local population. Finally the "functional" method prevailed for the work of the city planner, while natural population growth is taken into account at an earlier stage, being an important consideration in determining the location of industry.

The plans of the various factories and institutions cover not only the quantity of the future labor force, but also give indications of its composition as to sex, age and educational level.

Summing up this information, and taking into account the local habits and the expressed desires of the population, the city planner designs the residential sections. He then proceeds to establish "nets" of health institutions (clinics, first-aid stations, hospitals, sanatoria), of schools, cultural institutions (clubs, libraries, theatres, movies) of parks and playgrounds, and of restaurants, stores, and repair-shops.

The anticipated movement of people from their homes to places of work and recreation controls the design of passenger transportation. The data furnished by the various factories and institutions concerning the volume of their outgoing production and of their consumption of raw material and fuel permit a fairly exact determination of the facilities needed for freight movement.

On the basis of the combined needs of industry and population "budgets" are worked out for the consumption of electricity, gas, water, and heat, and the distributive systems are designed accordingly. In this field, the "fourth dimension" of city planning, the time sequence of construction offers difficult problems, which have been made particularly acute by the necessary diversion of scarce materials to national defense.

City and Countryside

In working out the budgets of energy and heat, the needs of the surrounding countryside are taken into account. The summer surplus heat of the "Tets" is used for greenhouses, sewerage is utilized as manure for truck gardens, garbage from the dining halls and restaurants goes to hog farms. Dairy farms form the outer ring of the "agro-zone."

Not only do the "kolkhozi" bring the surplus of their co-operatively owned fields and cattle farms to the market, but in addition the individual members of the "kolkhoz" sell in the city fruits and vegetables from their privately owned two-acre plots, and dairy products and eggs from the fam-

ily cow and chickens. The "kolkhoz market" and the roads leading to it are an important element in the city plan. On the other hand, the farmers coming to town have to be taken into account in calculating the capacity of the stores, theatres, and clinics.

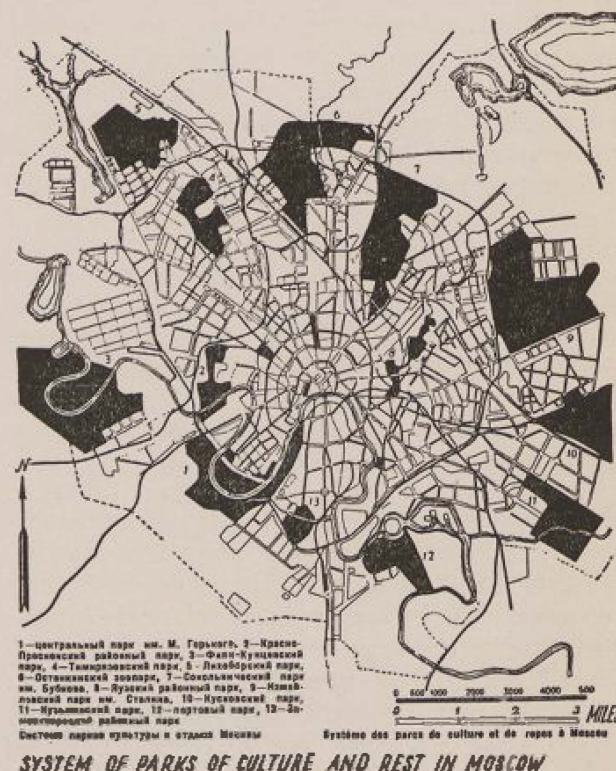
In addition to feeding the city population, the countryside serves for their recreation. Suitable territory is set aside for rest homes and sanatoria, for summer homes for families and kindergartens, for tourist bases and camps.

The Parks of Culture and Rest

While these places are mainly visited on weekends and vacations, the parks of culture and rest serve for every-day recreation. For Moscow, a whole system of parks has been developed, mainly in the shape of wedges widening out from the central part of the city towards the outskirts (fig. 3). Medium sized cities, such as Chelyabinsk, usually have one big central park, wherever possible on the shores of a river or lake, and a number of neighborhood parks all tied together by a system of park strips (fig. 4).

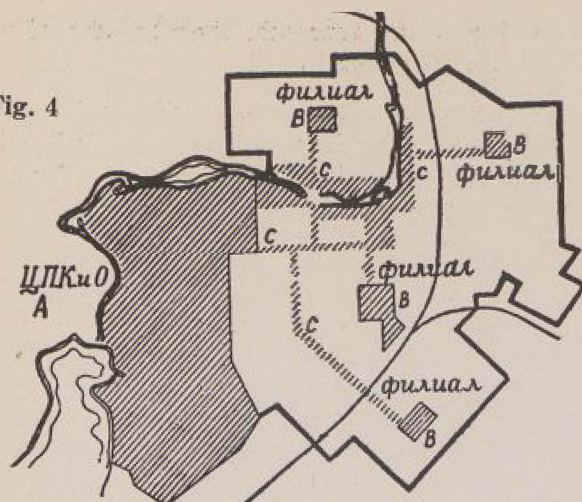
In smaller cities the entire population may be found in the park of culture and rest on a fine summer's evening. In addition to being a park, it also takes over part of the functions which

Fig. 3



SYSTEM OF PARKS OF CULTURE AND REST IN MOSCOW

Fig. 4



SYSTEM OF PARKS OF CHELYABINSK

- A CENTRAL PARK OF CULTURE AND REST
- B NEIGHBOURHOOD PARKS OF CULTURE AND REST
- C PARK STRIPS

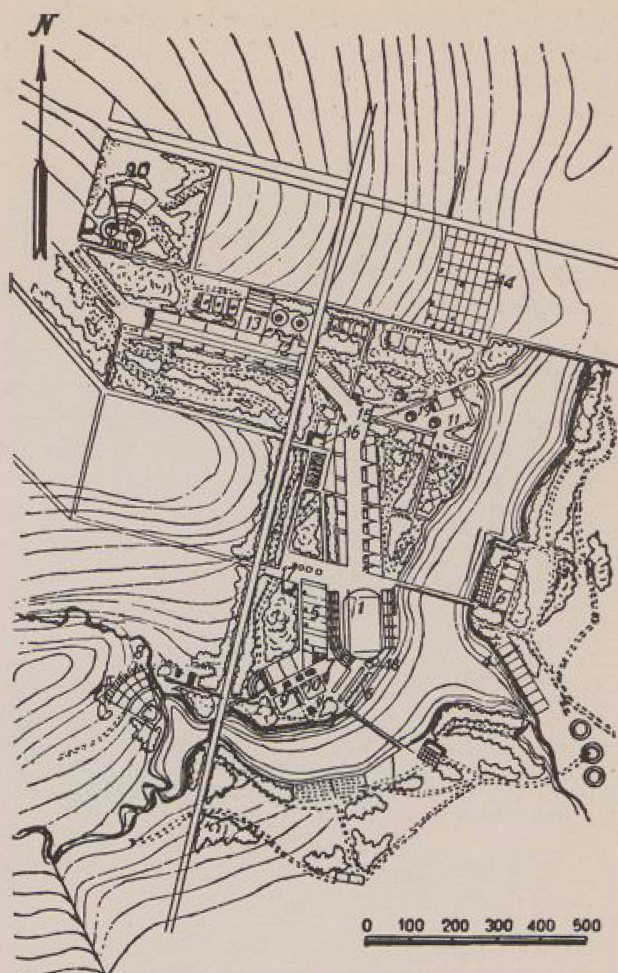
in American cities are served by main street or by the "corso" of the Italian town. The plan is usually developed around a broad promenade, with the quieter uses somewhat removed from the noisier forms of recreation (fig. 5).

The Architectural Unity of the City

These various elements of the socialist city had been developed already in the beginning of the first five-year plan. At that time their organization was sought mainly by the "flow of functions" method, streets being traced along the expected lines of traffic movement. With a very mechanical version of "Zeilenbau" prevalent at that time, the result was a product at once rigid and vague, where you lost the feeling of being in a city, or indeed on a street. A notable exception was Zaporoshe, the beautiful new city built near the great Dnyepir-dam, a creation of the brothers Vyesnin, leaders of modern Russian architecture.

It was distinctly felt that a city should be more than just a bundle of functions. A search began for the "shape" of the city, for the city as a three-dimensional architectural unit, a visually perceivable form appealing to human emotion.

The monumental embankments, streets, and squares of Leningrad were a powerful influence. Together with the work of Haussman in Paris and his imitators in Vienna and Berlin they shaped the concept of "Stolitchnost" (character of a capital city) which controls the reconstruction of Moscow, and also the enlargement of Leningrad. There may be some doubt whether the gigantic mass of these cities can still be organ-



PARK FOR CULTURE AND REST FOR WORKERS OF THE IRON AND STEEL WORKS AT KOSSOGORSK

Fig. 5

Park of Culture and Rest for the settlement of the workers of the iron and steel works of Kossogorsk.

1. Stadium
2. Field for mass work (games, square dances, etc.)
3. Quiet rest area
4. Beach
5. Playfields
6. Water sports
7. Gym
8. Area for one day recreation
9. Pavillion for defense propaganda
10. Open air space for defense propaganda
11. Central base of cultural work
12. Pavillion for exhibits
13. Open air exhibits
14. Model farm
15. Movie theater
16. Circus
17. Band-stand
18. Amusements
19. Children's section
20. Open air theater

ized by the means of 18th century city building, the street and the square. The attempt has led to dimensions which dwarf all historic precedents and are perhaps out of human scale.

These main streets and squares serve as the backbone of the architectural composition. Each one of them is entrusted to a leading architect, who has the task to coordinate the work of all other architects building in the adjacent district. This opens up great possibilities. Under our conditions of competitive real estate ownership we have only the choice between the "picturesque" congestion of Manhattan skyscrapers and the drab monotony of the police-controlled "gabarit" of the newer Paris streets.

The Soviet architect is free to organize buildings of various heights into an unified architectural composition, articulating the city organism by an expressive skyline.

"Ensemble planning" or, "complex planning" are the terms used by Soviet architects for this attempt to integrate the architecture of the individual building into the "shape" of the city as a unit without renouncing the expression of the specific character of the individual building (as a dwelling, school, or theatre) designed by an individual architect.

The center of the entire composition is the square, the administrative and cultural center of a residential district or of the city. These vast squares, which ordinarily appear somewhat empty, spring to life when they are filled by the big demonstrations, which play such a large role in the life of the Soviet city, comparable only to the civic-religious processions in the city-republics of ancient Greece and of the European middle ages.

Smaller cities try to emulate Moscow. While these designs often show a lack of scale and a

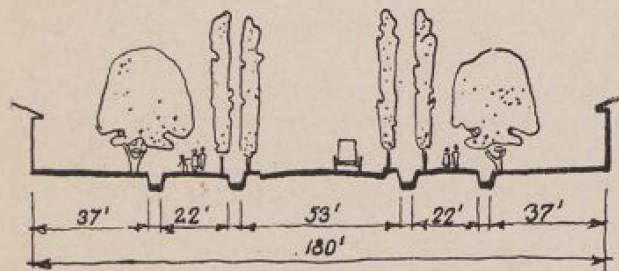


Fig. 6

Typical street profile in "European part" of cities of Central Asia. These wide streets with their tall poplars and broad "Karagach" trees, built by the Tsarist government for its employees and retainers, are one of the best achievements of pre-revolutionary Russian urbanism. The four ditches carry running water from the mountain streams, which feed an extensive irrigation system.

rather formalistic approach, their breadth of vision is always admirable.

Local conditions often create additional tasks. In Central Asia the Tsarist government had built, outside of the old native towns, new cities for the Russian employes, officers, and merchants. The broad shaded streets of these cities (fig. 6) are among the best creations of the 19th century urbanism, and contrast strongly with the narrow crooked alleys of old Tashkent or Bokhara.

Since the socialist revolution had shifted "the white man's burden" to the willing shoulders of the young national republics of the Uzbeks, Kirghiz, and Tadjiks, the division between the Asiatic and the European cities has become obsolete, and it is the city planner's task to merge them into a single organism. While broad streets are cut through the old insanitary quarters, interesting attempts are made to continue the tradition of the native house with its open air living in modern surroundings, as in Chirchikstroi near Tashkent.

The Superblock

In all cities, old or new, the basic unit of planning is the superblock, organized as a neighborhood unit. A group of superblocks, surrounded by major traffic arteries, compose a residential section. The size of the superblock varies from 15-25 acres with elevator apartments, to 30-37 acres with wooden two-story houses. With two-story houses, the population density is about 80 persons per acre, with higher apartment houses 120-160 persons, going up to 200 per acre in the central districts of the biggest cities. This results in a relation of floor space to acreage varying between 60% and 120% and a coverage between 16% and 35%. In addition to the dwellings the superblock contains nurseries for children from two months to three years, and kindergartens for those from four to seven. These are always in one or two-story buildings; so is also the community center, called club, which contains at least one hall and several rooms for study and discussion groups, and for the work of the tenants' council and the tenants' court.

Because of the pressure of housing needs, and the shortage of labor and materials, very often the erection of these auxiliary buildings was delayed and rooms were temporarily adapted for these purposes. However, the superblock is always planned as a complete unit and one by one the nurseries and kindergartens are built in the places

provided for them, though often with changes in design.

In the early thirties, houses were built exclusively in parallel rows, facing east and west usually with a monotonous repetition of blank end walls. This unpleasant appearance was made worse by the fact that the erection of the auxiliary buildings was delayed and the space between the houses, planned as a garden, was filled with laundry yards, garbage dumps, etc. The resulting unsightliness of the streets evoked strong protest. For a while the pendulum swung to the other side. Houses were built all around the periphery, without regard to orientation, and the superblock was treated as a perfectly isolated unit designed with a rigid symmetry. Gradually the interior of the block is being opened up again and brought into a special relation to the street, and a more flexible treatment tries to integrate the buildings of the block with the contours and streets of the entire residential district.

Whatever the treatment of the dwelling houses, the children's institutions are always carefully orientated, and well protected from the street. They always have their own, fenced-off playgrounds. The balance of the territory is given over to service yards, playfields, and green for passive recreation. Schools are usually not included in the superblock. In earlier years the tendency to build gigantic "school-combines" for 3000 or more students made their inclusion in the superblock impossible. The school with 22 class rooms adopted as the standard type since 1935, serves a population of about 4000; this is not so far in excess of the population of the average superblock, as to exclude integration. However, generally schools, as well as stores, have been related not to the individual superblock, but to the residential district as a whole.

Public ownership of land and urban houses has enabled the Soviet cities to carry out rehabilitation of old city blocks on a large scale. The best buildings are conserved and improved; the poorer ones torn down and replaced by new ones. The rehabilitated blocks are organized on the same lines as the new ones.

The Housing Problem

For the Russian worker life in a new well-built superblock with its abundance of light and air

means a truly revolutionary change from the housing conditions of the old days.

Russian capitalist industry had drawn its labor force from the surplus population of the village. In most cases the workers left their families home in the peasant hut and were crowded into factory dormitories. Others lived in the basements of the lower middle class apartment houses, or in peasant huts on the outskirts of the city. Workers' families considered themselves lucky if they had a room for themselves. In many cases they could only rent a "corner" divided by curtains from the other family occupying the balance of the room.

Only in Leningrad (then Petrograd) did a considerable part of the workers live in apartment houses. But even here there was an average of $3\frac{1}{2}$ persons per room in the working class districts. A survey of the living conditions of textile workers made in 1912 showed an average floor space per person of 33 sq. ft. in Leningrad, and of 22 sq. ft. in Ivanovo-Vosnyessensk, the "Russian Manchester."

The term "floor space" in Russian statistics applies only to bed rooms and living or dining rooms, exclusive of kitchens, floors, bathrooms, etc.

Soon after the revolution, in 1918, all urban housing, with the exception of small single family houses, was municipalized, and workers were settled in the dwellings of the former upper and middle classes, who were allowed to retain an average of 97 sq. ft. per person for themselves—usually one or two rooms. In Moscow alone half a million persons were resettled this way. The sharing of kitchens and bathrooms, by several families was an unavoidable source of friction, and divided responsibility led to extremely poor maintenance of the dwellings. However, the roughly equal distribution of all available housing space greatly reduced the worst forms of congestion. While in 1912 no less than 61.7% of the entire population lived in rooms occupied by more than two persons, this percentage had been reduced to 36.7% in 1923.

The housing fund, already insufficient, had further decreased in quantity and quality during the seven terrible war years from 1914 to 1921. A long time was needed to make the most urgent repairs, and only slowly did new construction get under way. The development is shown in the following table:

Year	Floor space in urban dwellings in million square feet
1913	1,650
1923	1,400
1927	1,650
1941	2,550

Taking into account replacement of over 100 million square feet demolished since 1923, it is seen that one-half of all existing housing has been built since the first world war. This is a higher proportion than in any other country, not excluding Sweden.

But while the housing space increased, the population increased even more rapidly, and as a consequence the average floor space per person has dropped to about 46 square feet.

However, this quantitative deterioration is more than offset by qualitative improvements. The overall average does not take into account the changed family composition and age structure of the population. Today the Russian worker lives with his family. Before the revolution the average number of dependents living with an adult male worker in Moscow was 0.4; in 1931 it was 3.6.

A majority of all old houses were of the most primitive type. No running water or sewers; an outhouse in the backyard; kerosene lamps. The new dwellings have a bathroom and well equipped kitchen, and central heat, except in some one and two story buildings. At the same time the old houses also have been improved. All are now equipped with electrical light, most of them have been connected with water and sewers, and gas stoves have largely replaced the old wood-heated stoves in many cities.

Most important has been the freeing of the dwelling of many functions for which no provision has been made previously.

The number of beds in hospitals and maternity hospitals has been greatly increased, so that no sick person or young mother has to be accommodated at home (hospitalization, like all medical care, is free.) Many meals are taken in dining halls and restaurants. Home cooking has been simplified by production of canned goods and semi-prepared foods, formerly unknown. In addition to municipal and co-operative laundries, many apartment houses have their own. Even where they are lacking, washing is at least done in the bathroom, and not, as previously, in the sleeping-living-dining room. A good deal of

social life has been transferred to the clubs and "red corners" which function as collective living rooms. The children of school age have their own, splendidly equipped "pioneer clubs." Children of pre-school age spend their days in the kindergartens which have been gradually extended. In the cities they now take care of more than two-thirds of all children between the ages of four and seven. The development of nurseries for the youngest children has been slower; they are able to take care of 20% to 25% of this age group.

All these community facilities form as much a part of Soviet housing as the apartments themselves. Thanks to them, the physical and moral health of the city population has been steadily improving despite the terrific over-crowding of urban dwellings.

Types of Housing

The pressing need for more and more housing, while building labor and materials were exceedingly scarce, made the task of the houseer very difficult. It meant squaring the circle to design a dwelling which would be appropriate for a family under normal conditions, with about 100 square feet per person, and at the same time somehow accommodate people at about twice that density. This dilemma imposed many restrictions on the architect. As you might expect several families to live in one apartment, every room had to have direct access from the hallway. You could not have a combined kitchen-dining room. Bathroom and toilet had to be separated. In the period of reconstruction, during the twenties, while the growth of the city population was relatively slow, four room units were the rule. A number of small houses were built, in addition to walk up apartments of four to five stories.

When the first five-year plan initiated vast new construction jobs all over the country, the workers were at first housed in primitive wooden dormitories, with 10 or 20 bunks in one room. As soon as possible these were replaced by dormitories with rooms for one or two persons each, lined up on a central hallway and with two groups of washrooms and showers on each floor, one for each sex. Most of these dormitories contained also a lounge in the center of each floor, or at least one at the entrance. Some included also a dining room and kitchen, and other community rooms for games, reading, etc. They are inhabited by both sexes, many of the double rooms

being occupied by young couples. As an increasing number of women went to work in the new factories, their children had to be taken care of during working hours. Some architects proposed to house all children permanently in nurseries and kindergartens which were to be combined with the dormitories housing their parents. These "living combines" or "commune-houses" were to be amply equipped with all kinds of community facilities.

Many interesting plans were produced, but few workers had any intention of giving up family life, and few such houses were built. However, some big student dormitories correspond fairly close to this type of "living combine."

For the general population other types had to be found. A number of houses were built of a type which may be regarded as an intermediate stage between the dormitory and the normal apartment (fig. 7).

A number of three-room apartments are lined up along a central hallway with a group of showers and bathrooms. Poor maintenance of the common bathrooms and noise from children playing in the hallway are the main objections against this type. It was deemed preferable to build five room apartments, with two families sharing one kitchen and bathroom.

In 1930 it was found that there would not be enough bricks to build both the new factories and the houses for the workers. The production of prefabricated houses out of wooden panels was started on a large scale. They were two-story houses with two-staircases and four apartments to each floor. Each apartment contained kitchen,

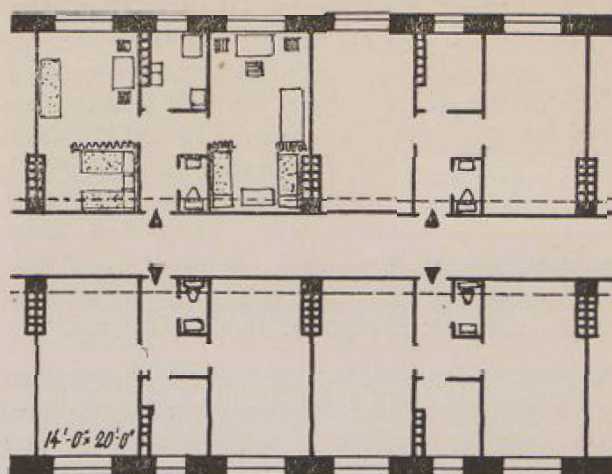


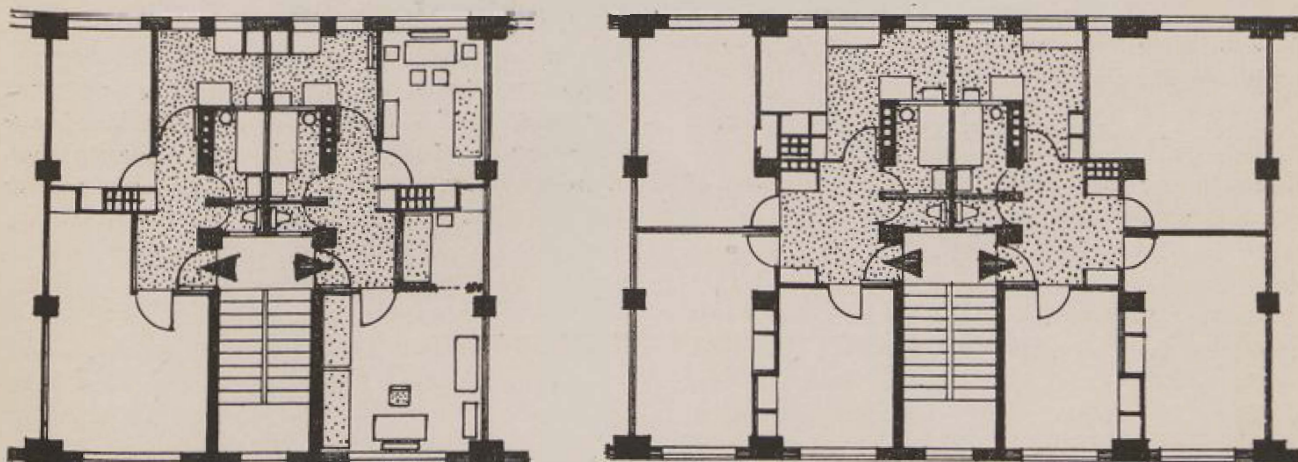
Fig. 7

Three room apartments lined up on central hallway; groups of showers and bathrooms for groups of 6 to 10 apartments. Brick columns supporting reinforced concrete beams, wood joists, except in bathrooms. Usually two stair halls, no elevators, 4 or 5 stories. Typical of first five year plan, when steel, cement, plumbing and mechanical equipment were at a premium. Note ventilating shafts.

toilet, and four rooms. A bath house was set up for a group of ten or twelve houses.

Thousands of these packaged homes were shipped out all over the country and nailed together in short order. From 1930 to 1934 over 100,000 five-room dwelling units were supplied by this method. In 1935, the building of these primitive houses was discontinued in favor of permanent housing. Some of this consists of small one family houses.

Land, credit on favorable terms, building materials, and technical guidance are supplied to individuals who want to build their own homes.



TYPICAL PLANS OF 3 AND 4 ROOM - APARTMENTS, MOSCOW, 1933.

COMMON STRUCTURAL BRICK
SYNTHETIC INSULATING BRICK OF LITTLE STRUCTURAL STRENGTH

NOTE VENTILATION SHAFTS.

Fig. 8

The prevalent type however is the apartment house, two to four stories high, with two, sometimes three, apartments on each floor served by one stair hall. For each apartment there are two or three rooms, kitchen, bath, and W. C. all with direct access from a hall. Bath and W. C. usually have no outside windows, but ventilation flues leading up to the roof. These flues are a Russian peculiarity caused by the necessity to keep windows hermetically closed during the extreme winter cold (fig. 8).

In some cases, notably on broad avenues and on river embankments, elevator apartments have been built, six to twelve stories high, especially in Moscow and Leningrad. The increase in height has not led to greater density, but to ampler dimensions of the open spaces in the interior of the super-block. The use of elevators has made it necessary to arrange six to eight apartments off one stair hall. However, Russian architects have not adopted the T, Y, or cross-type familiar to American housers.

They have avoided breaking up the clear simple shapes lining the streets and the spacious interior courts, and have instead given up cross-ventilation for a majority of apartments. This is acceptable because all rooms are ten to eleven feet high and of ample dimensions. This large scale is ultimately conditioned by the severe climate; brick walls are made 25 inches thick, and the buildings are up to 50 feet deep.

Considerable progress has been made in the use of pre-cast concrete slabs for walls and ceilings, of prefabricated partitions, plumbing units, glazed and painted windows. In 1940, 23 six-story houses with 100 apartments each were built in Moscow with these methods on the initiative of architect Mordinov.

Soviet Cities in the War

The cities of the U.S.S.R. have stood the test of war supremely well.

The wisdom of many previously questioned decisions has become apparent. The spacious marmor-lined subterranean palaces of the Moscow subway have proved themselves as the world's best air-raid shelters; not only safe, but also healthy and cheerful. On the wide asphalt-covered surfaces of the great boulevards, which several years ago replaced the tree-shaded promenades, the motorized searchlights and A.A. guns move freely. Concussion from exploding loses its force in the wide open spaces of the squares and superblocks. It is easier to clear the roof of one 8 story apartment house from incendiary bombs, than it would be to clear four roofs of four two-story houses. While we do not know enough to draw all conclusions from their experience, it is certain that the heroic defenders of Moscow and Leningrad have definitely exploded the myth of the vulnerability of the modern great city.

The architect and city planners of the Soviet Union have at once turned their activities to the defense of their country. They work on camouflage, on the erection of fortification, on the development of simplified methods of speedy construction with locally available materials.

On September 13th, 1941, the Soviet Government established a large building program for resettling the workers of the factories transferred to the Urals, Siberia, and Central Asia. Dwellings, dormitories, nurseries, dining rooms, clubs, hospitals, shops, are being built at top speed. All project work is done on the site. A new prefabricated house of wooden panels has been developed, which is brought to the site by a five-ton truck and set up within an hour.

For the design of the small houses to be built in these transferred cities the architects and planners of the U.S.S.R. are looking to the precedents of America. They feel that there is much that they can learn from us; there is certainly no less for us to learn from them.

The illustration on the opposite page shows a gathering of students in the School of Architecture at Moscow in 1930.

PHOTO: HANNES MEYER

TASK MAGAZINE is the organ of architectural student opinion centered at Cambridge, Massachusetts. It corresponds in aims and ideas to the growing body of architectural opinion in many parts of the world which recognizes the political and sociological content of architecture and the allied arts. We quote from the first issue (now out of print):

"This magazine is to be the expression of students who realize that architects today are either unaware of the rapidly changing needs of society or are unable to answer them. We believe that the architectural schools and the profession do not sufficiently represent society's needs nor train the student and the young architect in the principle of collective work . . . TASK is to be a means of achieving clarity of ideas and forms of organized action so that our work in building and planning will answer the requirements of society."

In this work we are not alone, nor could there be much hope for progress if we were. In Britain, in America, in Australia (to mention only three countries in which we have definite contacts) other student groups are working to increase the scope of the architect and to better the position of students and technicians.

TASK urges all its readers to write their ideas and opinions on architectural organization and to send them in for publication. Owing to the length of the articles in the present issue it has been found impossible to include the work of the schools and discussion groups as we did in our first and second issues, but we are hopeful that the topicality and interest of the articles justify this. We ask our readers to remember that TASK is not subsidized like the commercial press but depends entirely on subscriptions and voluntary contributions, and that space is therefore limited.

Please send us your opinions on this issue and on topics of interest to architectural students in war-time. We have reserved space in TASK 4 for reader's contributions and although this is war look forward to increasing our number of subscribers and regular readers. We hope that the value of TASK justifies this confidence in your support.

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